

WHAT IS CLAIMED IS:

1. An information storage apparatus having a hard disk drive for storing information, a control unit incorporating a controller that controls access to said hard disk drive and
5 a fan used for cooling at least said control unit,

wherein a module having said control unit has a structure that can be inserted/withdrawn into/from outside said storage apparatus or a structure having an interface for connection with the outside.

10 2. The information storage apparatus according to claim 1, wherein said fan is a sirocco fan.

3. The information storage apparatus according to claim 2, wherein a plurality of said sirocco fans are provided.

15 4. The information storage apparatus according to claim 1, wherein a direction of insertion/withdrawal of said module or interface between said module and the outside and a direction of exhaust hole of said fan are provided in the same surface of said apparatus.

20 5. An information storage apparatus having a hard disk drive for storing information, a control unit incorporating a controller that controls access to said hard disk drive and a fan used for cooling at least said control unit,

wherein said apparatus has a structure where a first cooling air channel formed by cooling means of said hard disk
25 drive and a second cooling air channel formed by means for

cooling of said control unit are separately provided,

and wherein a module having said control unit has a structure that can be inserted/withdrawn into/from the outside said storage apparatus or a structure having an interface for connection with the outside.

6. The information storage apparatus according to claim 5, wherein in said first cooling air channel, a relay module, including a power supply, that performs information transmission/reception with an external device, is provided in a rear stage, and said hard disk drive is provided in a front stage, along the cooling air channel.

7. The information storage apparatus according to claim 5, wherein in said second cooling air channel, a power supply unit that supplies power to the controller that controls access to said hard disk drive, is provided in a rear stage, and a second medium different from said hard disk drive and a battery module that protects information upon power supply stoppage from said power supply unit, are provided in a front stage, along the cooling air channel.

8. The information storage apparatus according to claim 7, wherein said second medium is a floppy disk drive.

9. The information storage apparatus according to claim 5, wherein said means for cooling of said controller is a sirocco fan.

10. The information storage apparatus according to

claim 9, wherein a plurality of said sirocco fans are provided.

11. An information storage apparatus having a hard disk drive for storing information, a power supply unit that supplies power to a controller that controls access to said hard disk drive, a power receiving unit that is supplied with alternating current power from outside, and an AC/DC conversion unit that converts the alternating current power supplied to said power receiving unit into direct current power supplied to said power supply unit,

wherein said apparatus has a structure where said power receiving unit and said AC/DC conversion unit are integrated with each other.

12. The information storage apparatus according to claim 11, wherein said power receiving unit and said AC/DC conversion unit are integrated into one substrate where said power receiving unit is provided on one surface and said AC/DC conversion unit is provided on the other surface, and the surfaces respectively have a connector for electrical connection.

13. An information storage apparatus having a hard disk drive for storing information, a control unit incorporating a controller that controls access to said hard disk drive and a fan used for cooling at least said control unit,

wherein upon occurrence of abnormality in said fan, a display light emitting device is turned on in a peripheral

portion of said fan, an optical transmission member is provided between said display light emitting device and a display window outside said apparatus, and turned-on status of said display light emitting device is displayed on said display window.

5 14. The information storage apparatus according to claim 13, wherein said optical transmission member is an optical fiber.

10 15. The information storage apparatus according to claim 13, wherein said optical fiber is provided with a metal tool as fixing means.

 16. An information storage apparatus having a medium for storing information, a control unit incorporating a controller that controls access to said medium and a fan used for cooling at least said control unit,

15 wherein said medium is a plurality of hard disk drives, and wherein the number of controllers supporting said a plurality of hard disk drives is smaller than the number of said hard disk drives.

20 17. The information storage apparatus according to claim 16, wherein the number of said controllers is one.

 18. The information storage apparatus according to claim 16, wherein said controller is a fiber channel controller.

25 19. The information storage apparatus according to claim 16, wherein an interface for connection on the side of

said hard disk drive and a host interface are fiber channel interfaces.

20. An information storage apparatus having a medium for storing information, a control unit incorporating a
5 controller that controls access to said medium and a fan used for cooling at least said control unit,

wherein said control unit has a structure that can be inserted/withdrawn into/from outside said storage apparatus,

and wherein connectors for electrical connection
10 between apparatus side and control unit side connected upon insertion/withdrawal, an eccentric cam supporting the insertion/withdrawal and a projection member formed in said eccentric cam are provided,

further wherein said apparatus has a structure in which
15 upon completion of engagement between the connectors, a rotational axes are approximately aligned in a position of said engagement between the connectors and a position of said projection member.

21. The information storage apparatus according to
20 claim 20, wherein said apparatus side has a projection shaft such that said control unit side is guided and engaged, and said control unit side has a rotatable axis and a curving ditch typed project different from said rotational axis, and further, said ditch has an extension for engagement with said projection
25 shaft.